

## In the Claims:

The following claims listing supercedes all prior listings.

1. (Currently Amended) A method of processing images ~~in images~~ comprising curvilinear structures, the method comprising the following ~~parallel~~ steps of:

~~\_\_\_\_\_ a step of filtering said images;~~

~~\_\_\_\_\_ a decision step intended to select the~~ selecting pixels within said  
~~images of the image~~ pertaining to ~~an interesting~~ curvilinear structure, and

~~\_\_\_\_\_ said method being characterized in that the decision step comprises, in parallel, a sub-step of estimating the direction of each image pixel and as well as a sub-step of analyzing the connectivity of neighboring pixels based on the estimated their directions for each said image pixel, and~~

~~\_\_\_\_\_ at the end of the sub-step of estimating the direction of each image pixel, and a sub-step of selecting groups of image pixels as a function of the result of said sub-step of analyzing the connectivity of neighboring pixels based on their directions, at the end of said step of filtering.~~

2. (Currently Amended) A method of processing images as claimed in claim 1, wherein the step ~~characterized in that said step of filtering said images further comprises a step of~~ comprises a sub-step of selecting pixels, the selected pixels of an image being those that have displaying a contrast which is larger than X times ~~the~~ variance of the noise in the image, where X is ~~being~~ a user-adjustable parameter.

3. (Currently Amended) A method of processing images as claimed in claim 1, wherein ~~characterized in that said step of filtering said images uses two neighborhoods (N1) and (N2), of a given pixel, wherein the gap (GAP) extending between these neighborhoods is~~ being user-adjustable.

4. (Currently Amended) A method of processing images as claimed in claim 3, wherein a ~~characterized in that the height (H) and the length (L) of said neighborhoods are~~ adjustable ~~user-adjustable~~.

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5. (Currently Amended) A method of processing images as claimed in claim 1, ~~wherein~~ characterized in that said ~~step~~sub-step of analyzing the connectivity of neighboring pixels based on their directions uses a neighborhood of a given pixel, ~~which this~~ neighborhood ~~extends~~ extending in the direction of the pixel considered ~~and, this direction~~ being determined during ~~the step~~said sub-step of estimating ~~the direction~~ of each pixel of the image.

6. (Currently Amended) A method of processing images as claimed in claim 5, ~~wherein~~ characterized in that the length of said neighborhood is ~~adjustable~~user adjustable.

7. (Currently Amended) A method of processing images as claimed in claim 1, ~~wherein~~ the step of selecting characterized in that said sub-step of selecting groups of pixels uses ~~an adjustable~~user adjustable parameter M, ~~which this~~ parameter M ~~allows~~allowing computation of ~~the~~ minimal sum of contrasts of the pixels of a given group required for ~~the~~this group to be selected.

8. (Currently Amended) A method of processing images as claimed in claim 1, ~~further~~ including:

~~intended to detect artery anomalies, characterized in that it further~~  
~~comprises the steps of:~~

skeletonizing ~~said images to for~~ extracting a skeleton of curvilinear structures,

measuring ~~artery diameters of arteries found in said skeletonized images,~~  
~~detecting arterial anomalies~~taking decisions on the basis of the diameters and rules predefined ~~rules~~by an operator.

9. (Currently Amended) A method of processing images, ~~comprising the steps of:~~  
~~acquiring~~ intended to detect artery anomalies in three dimensions, having at least a first digitized image and a second digitized image of ~~an the same artery to be~~ analyzed for artery anomalies.

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~~as inputs, characterized in that it comprises, in series, a method of:~~

~~processing images as claimed in claim 1, applied to the first and the second digitized image, for giving a first and a second processed image, and the steps of:~~

filtering said first and second digitized images;

selecting pixels within said filtered, digitized images pertaining to a curvilinear structure, and

estimating a direction of each selected pixel and analyzing a connectivity of neighboring pixels based on the estimated directions for each selected pixel, and

selecting groups of pixels as a function of the result of said analyzing,

skeletonizing, applied to the first and the second processed images to extract, for extracting a first skeleton of the curvilinear structures of the first processed image, and a second skeleton of the curvilinear structures of the second processed image,

reconstructing a 3D image of the artery, based on the first and the second processed image and their skeletons, for giving a 3D image of the artery,

measuring artery diameters, within based on the reconstructed 3D image of the artery, and

determining the existence of artery anomalies based on said taking decisions on the basis of the diameters and rules predefined by an operator.

10. (Currently Amended) A computer readable medium comprising a set of computer readable instructions, which computer readable instructions may be processed by a computer to implement program which can be carried out by means of a processor, intended to perform a method of processing images as claimed in claim 1.

11. (Currently Amended) An image-processing system comprising a programmable computer programmed with a set of instructions for carrying out the method as set forth in claim 1, including intended to perform a computer program as claimed in claim 10, or a circuit intended to perform the method of processing images as claimed in any one of claims 1 to 9, a device for projecting images processed thereby, and in accordance with said method and possibly a device for storing said images.

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12. (Cancelled)

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